

DESIGN MEMORANDUM NO. 14-04

TO: Chief District Engineers  
Design Engineers  
Active Consultants

FROM: Gary W. Sharpe, P.E.,  
Director  
Division of Highway Design

DATE: December 14, 2004

SUBJECT: Project Development Guidance on  
Signing and Pavement Markings



The Highway Design Manual is currently undergoing significant revisions. As each chapter is completed, it will be released as a Design Memorandum in order to implement policy presented in that specific chapter.

This specific Design Memorandum deals with signing and pavement markings considered in the project development process. A copy of the Project Development Guidance on Signing and Pavement Markings can be obtained from the Division of Highway Design's Web page at <http://www.kytc.state.ky.us/design/designmanual/>.

Roadway plans often require plans for signing and/or pavement markings (including striping). This chapter outlines how signing and marking plans are developed in conjunction with the roadway plans.

The schedule for implementation is as follows. Effective with this memorandum, the Project Development Guidance on Signing and Pavement Markings should be utilized for all new projects or for existing projects that have not advanced beyond the Preliminary Line and Grade stage. Plans, Design Executive Summaries, Plan Submittals, etc., should reflect the new policy.

Projects that have advanced beyond Preliminary Line and Grade, but will be let to contract prior to July 1, 2005, may use the criteria and features from the previous Highway Design Manual. However, it is allowable to use any of the policy written in the Project Development Guidance on Signing and Pavement Markings of the upcoming Highway Design Manual for these type projects if necessary or desired by the Project Manager/Project Team.

Projects let to contract after July 1, 2005, must comply with the Project Development Guidance on Signing and Pavement Markings unless otherwise approved by the Director of Highway Design.

Any questions regarding this memorandum should be directed to this office.

GWS:JDJ:CW

|   |                             |
|---|-----------------------------|
| <h1 style="text-align: center;">HIGHWAY DESIGN</h1> | Chapter                     |
|   | SIGNING & PAVEMENT MARKINGS |
|   | Subject                     |
|   | Signing                     |

**Summary:** Roadway plans often require plans for signing and/or pavement markings (including striping). This chapter outlines how these plans are developed in conjunction with the roadway plans.

**GENERAL:** Plans will be prepared for new sign installations and pavement markings for Interstates, Parkways and other high volume, limited access roads. When applicable, signing plans will also be included for the portion of all crossroads affected by new construction and/or improvements. Striping plans will be developed for projects that deviate from the Standard Drawings.

Signing plans may also be required on other projects. Central Office Highway Design should be consulted when the Project Team believes signing plans are needed.

Signing and marking shall be performed in accordance with the **Manual on Uniform Traffic Control Devices (MUTCD)** and the **Guidance Manual of the Kentucky Transportation Cabinet's Division of Traffic Operations**.

**SIGNING PLANS:** The Project Manager should contact the Division of Highway Design Branch Manager for Roadway Design Engineering to determine if the Signing Plans for the project can be prepared by the Division of Highway Design or should be prepared by the consultant and reviewed by the Division of Highway Design. If the signing plans are to be developed by the consultant, a preliminary meeting with the Division of Highway Design will be held to determine the necessary signing involved in the project. The decision to utilize consultant should be made prior to negotiating Phase II design.

Signing plans shall be completed to a conceptual stage in time for delivery to the Project Team prior to the joint inspection in order that Right of Way and Utility needs may be accommodated. All signing plans prepared by consultants will have two reviews – conceptual plans prior to joint inspection and final plans prior to the project letting. The final signing plans shall be submitted with check prints for roadway plan review.

Completed signing plans will contain the necessary quantities sheets, standard detail sheets, plan sheets, and sign detail sheets.

Panel signs shall be numbered P-1 through P-XX and Sheeting signs shall be numbered S-1 through S-XX (See Exhibits 1200-01, 1200-02, and 1200-03).

**SIGN LOCATION:**

The location of signs shall comply with the **Manual on Uniform Traffic Control Devices, Roadside Design Guide**, and the **Guidance Manual of the Kentucky Transportation Cabinet's Division of Traffic Operations**.

**SIGN SUPPORTS:**

All sign supports that must be located in the clear zone shall be of "breakaway" design or shall be protected by crashworthy barriers. The design for these "breakaway" supports or crashworthy barriers shall comply with the **AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals** and the **Roadside Design Guide**. New installations of these "breakaway" design supports shall be omni-directional breakaway and be based on the AASHTO 2001 wind design load recommendations.

The structural design of sign supports shall be coordinated with the Division of Bridge Design through the Signing function of Highway Design.

**SIGN REPAIR AND REPLACEMENT:**

Maintenance of panel signs will be administered through the Division of Highway Design. Work orders (including plans and/or sign design sheets when needed) will be issued by the Division of Highway Design upon receipt of a request through a TC 61-513E form from the District Traffic Engineer. This request shall include all pertinent information and photographs of the sign, supports and existing bases (See Exhibit 1200-04). When the work is completed, the District Traffic Engineer shall inspect the repairs/replacements and advise the Division of Highway Design in order that any invoices may be processed.

**ADDITIONAL OR SUPPLEMENTAL SIGNS:**

When directed by the Office of the State Highway Engineer, plans for additional or supplementing signing will be prepared by the Division of Highway Design or by the project consultant, when applicable.

**PLANS FOR PAVEMENT MARKINGS:**

Plans for pavement markings (including striping) shall be developed by the Project Team and/or the consultant for purposes of quantities. In instances where markings are considered to be complex, the Division of Highway Design will assist and review the plans or, when requested, may provide the necessary plans. It will be the responsibility of the Project Manager to recommend the appropriate roles of the Division of Highway Design and the consultant, when applicable. Plans shall be delivered to the Project Team prior to the joint inspection to allow a concurrent review of pavement marking and signing plans.

**PAVEMENT MARKERS:**

Raised pavement markers will typically not be shown on the striping plans but will be designated by note on the plans. However, for projects or portions of projects where the pavement markers placement is complex, the Division of Highway Design will review, assist, or develop plans. The Type V markers, and the use of Type IV-A markers on bridge decks, shall be included on projects for roads that are identified on the Raised Pavement Marker System as defined by the Division of Traffic Operation Guidance Manual. For those projects not identified on the Raised Pavement Marker System and where the Project Team has identified the need for markers, an exception shall be requested from the Office of the State Highway Engineer. Pavement markers shall also be included on typical sections with flush medians or a continuous left turn lane/two-way left turn lane (CLTL/TWLTL). Proper spacing and arrangement shall adhere to the KYTC Standard Drawings for permanently installed pavement markers.

# EXAMPLE STANDARD PANEL SIGN DETAIL SHEET

CELL LIBRARY: KYTC\_SHEET.CEL  
CELL NAME: SIGNSUM2

# EXAMPLE STANDARD PANEL SIGN DETAIL SHEET

EXHIBIT 1200-02

| GENERAL SIGN INFORMATION |                         |  |  |
|--------------------------|-------------------------|--|--|
| SIGN NUMBER              | #12                     |  |  |
| QUANTITY                 | 1                       |  |  |
| WIDTH                    | 18'-0"                  |  |  |
| HEIGHT                   | 13'-0"                  |  |  |
| AREA (Sq. Ft.)           | 252.8 SQ. FT.           |  |  |
| BORDER WIDTH             | 2"                      |  |  |
| BORDER RADIUS            | 12"                     |  |  |
| PANEL COLOR              | GREEN                   |  |  |
| LEGEND/BORDER COLOR      | WHITE/WHITE             |  |  |
| STATIONS(S)              | 302+00 RAMP 3           |  |  |
| PANEL MATERIAL           | REFLECTIVE              |  |  |
| LEGEND MATERIAL          | REFLECTIVE              |  |  |
| PANEL STYLE              | guide_exp_advance_b.ssi |  |  |

  

| SYMBOL(S) | X    | Y     | WIDTH | HEIGHT |
|-----------|------|-------|-------|--------|
| M1_4      | 45.4 | 102.1 | 45    | 36     |
|           |      |       |       |        |
|           |      |       |       |        |
|           |      |       |       |        |

  

| LETTER SPACING / INFORMATION |       |       |       |       |       |       |       |       |       |       |       |       |       |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| S=E8.3,E12.5                 | COPY  | E     | X     | I     | T     | 5     | 9     |       |       |       |       |       |       |
| L=83.5                       | SPACE | 120.2 | 128.1 | 137   | 140.1 | 158.8 | 171.3 | 181.3 | 193.8 |       |       |       |       |
| S=E15,E12                    | COPY  | N     | O     | R     | T     |       |       |       |       |       |       |       |       |
| L=61.4                       | SPACE | 105.4 | 120.8 | 133.8 | 145.8 | 157.1 |       |       |       |       |       |       |       |
| S=E16/12                     | COPY  | L     | a     | w     | r     | e     | n     | c     | e     | b     | u     | r     | g     |
| L=171.8                      | SPACE | 22.1  | 37.1  | 51.9  | 72.2  | 82.4  | 97.6  | 112.8 | 126.7 | 141.9 | 157.1 | 173.5 | 183.6 |
| S=E16/12                     | COPY  | F     | r     | a     | n     | k     | f     | o     | r     | t     |       |       |       |
| L=115.4                      | SPACE | 50.3  | 66.1  | 76.2  | 92.5  | 108.9 | 122.4 | 132.4 | 147.8 | 157.6 |       |       |       |
| S=E15,E10                    | COPY  | 1/4   | M     | I     | L     | E     |       |       |       |       |       |       |       |
| L=69.8                       | SPACE | 73.1  | 110.1 | 121.9 | 126.1 | 135.5 |       |       |       |       |       |       |       |
| S=                           | COPY  |       |       |       |       |       |       |       |       |       |       |       |       |
| L=                           | SPACE |       |       |       |       |       |       |       |       |       |       |       |       |

Letter locations are panel edge to lower left corner

  

| LOCATION & MOUNTING      |                   |         |            |
|--------------------------|-------------------|---------|------------|
| SIDE OF ROAD             | TRAFFIC DIRECTION | ON ROAD | MILE POINT |
|                          |                   |         |            |
| MOUNTING STYLE           |                   |         |            |
| BEAM MATERIAL            |                   |         |            |
| BEAM SIZE                |                   |         |            |
| BEAMPOST 1 LENGTH =      |                   |         |            |
| BEAMPOST 2 LENGTH =      |                   |         |            |
| BEAMPOST 3 LENGTH =      |                   |         |            |
| HORIZONTAL CLEARANCE     |                   |         |            |
| TYPE "A" FIXED           |                   |         |            |
| TYPE "B" BREAK-A-WAY     |                   |         |            |
| CONCRETE BASE DIMENSIONS |                   |         |            |
| a =                      | DIA.              | b =     | Cu. Yds.   |

CELL LIBRARY: KYTC\_SHEET.CEL  
CELL NAME: SIGNSUM1

| COUNTY OF | ITEM NO. | SHEET NO. |
|-----------|----------|-----------|
|-----------|----------|-----------|

| SHEETING SIGNS DETAIL SHEET |                             |              |               |               |  |              |                          |         |            |             |  |  |
|-----------------------------|-----------------------------|--------------|---------------|---------------|--|--------------|--------------------------|---------|------------|-------------|--|--|
| COUNTY OF                   |                             | ITEM NO.     |               | SHEET NO.     |  |              |                          |         |            |             |  |  |
| SIGN/SIGN ASSEMBLY NUMBER   | SIZES IN INCHES HORZ. VERT. | MESSAGES (1) | SPECIFICATION | SIGN LOCATION |  | SIDE OF ROAD | FACING TRAFFIC TRAVELING | ON ROAD | AT STATION | APPROXIMATE |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
| 2-                          |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
| 2-                          |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
| 2-                          |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
| 2-                          |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
| 2-                          |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
| 2-                          |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |
|                             |                             |              |               |               |  |              |                          |         |            |             |  |  |

SPECIAL NOTES:  
 1. THE COLORS SHALL BE AS SHOWN IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND STANDARD HIGHWAY SIGNS".

CELL LIBRARY: KYTC\_SHEET.CEL  
CELL NAME: SIGNSUM3

KENTUCKY TRANSPORTATION CABINET  
DEPARTMENT OF HIGHWAY DESIGN  
DIVISION OF HIGHWAY DESIGN

TC 61-513E  
09/04

### SIGN MAINTENANCE CHECKLIST

District \_\_\_\_\_ County \_\_\_\_\_ Road Name \_\_\_\_\_

Mile Point \_\_\_\_\_ or Location Description \_\_\_\_\_  
(Preferred) (ie. 800 ft. south of Exit 42 Gore sign)

Direction of Travel \_\_\_\_\_ Side of Roadway \_\_\_\_\_  
(ie. Southbound) (ie. "On the right side of the road, behind guard rail"  
or "on the left in the median...no guard rail")

#### Sign Message and/or Legend

Draw Sketch(s) of sign here.

| Sign Dimensions | Horizontal | Vertical | Letter Sizes & Series (if known) |
|-----------------|------------|----------|----------------------------------|
| Panel 1         |            |          |                                  |
| Panel 2         |            |          |                                  |
| Exit Panel      |            |          |                                  |
| Other Panels    |            |          |                                  |

#### Sign Condition and Damage(s)

#### Beam Descriptions

| Material | Flange Width | Distance From Ground To Top Of Sign |
|----------|--------------|-------------------------------------|
|          |              |                                     |

| Beam Condition and/or Damage  | Concrete Base & Stud Condition     |
|---|------------------------------------|
| (ie. Twisted / Bent / Broken / Missing) (Label each beam on pictures) | (Chipped / Cracked / Below Ground) |
| Beam #1   |                                    |
| Beam #2   |                                    |
| Beam #3   |                                    |

Does the sign and concrete bases require complete replacement?

Is there an acceptable location within 10 - 25 ft. of it's current location?

Attach Pictures - Sign Front & Back Beams - Conc. Bases - Surrounding Area / Close ups of all damaged areas